

IN THE CLAIMS:

Please cancel Claims 8-11.

Please amend Claims 1-7 and 12, as follows:

1. (Currently Amended) A telecommunications system for establishing a desired communication between two points, comprising:

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- a plurality of telecommunication links to transport data packets;
  - a plurality of telecommunication nodes connected by the telecommunication links;
  - an operating system distributed on the telecommunication nodes and operable to:
    - (i) identify at least two operating system functions required to effect the desired communication between the first and second points, each operating system function including a defined time limit for execution of the function;
    - (ii) ~~select a different telecommunication node on which each operating system function is to be executed, based upon criteria including the ability of the selected node to execute the operating system function within the respective defined a predetermined time limits~~ distribute the at least two identified operating system functions to respective telecommunication nodes; and
    - (iv)(iii) ~~instantiate and execute each identified operating system function on its respective telecommunication node such that a corresponding predetermined total execution time limit for executing all identified operating system functions is not exceeded, in order to accomplish the desired data communication through a set of telecommunication nodes, including the selected nodes, and telecommunication links of said telecommunication system.~~

2. (Currently Amended) The telecommunication system as claimed in claim 1, wherein the ~~at least two telecommunication links employed to accomplish the desired telecommunication use~~ communication uses at least two different protocols and the operating system is further operable to identify an operating system function to convert said desired communication to required protocols and to select appropriate telecommunication nodes to instantiate and execute these operating system functions distribute the identified protocol conversion function to an appropriate telecommunication node and to execute the identified protocol conversion function.

3. (Original) The telecommunication system as claimed in claim 1 wherein a first one of the at least two operating system functions adds a time stamp to each data packet of the desired communication received from the first point and a second one of the at least two operating system functions examines the time stamp of each data packet of the desired communication received at the second point and arranges the order and timing of those packets according to the time stamps.

4. (Original) The telecommunication system as claimed in claim 3 wherein the time stamps are generated from a global positioning system reference.

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5. (Currently Amended) The telecommunication system as claimed in claim 3 wherein the time stamps are generated from a system clock available in one of the ~~telecommunication~~s telecommunication links.

6. (Currently Amended) The telecommunication system as claimed in ~~any one of claims 1 through 5~~ claim 1 wherein the operating system is further operable to:

(a) determine the computational requirements of each identified operating system function; and

(b) determine the unused computational resources of telecommunication nodes; and the ~~selection~~ distribution of operating system functions to respective telecommunication nodes in step ~~(iii)~~ (ii) includes considering the computational requirements of the identified operating system functions ~~identified in step (ii)~~ and the unused computational resources of the telecommunication nodes to balance computational loads of said telecommunication nodes.

7. (Currently Amended) The telecommunications system as claimed in claim 6 ~~further comprising the step of monitoring~~ wherein the operating system is further operable to monitor, during the desired communication, the use of computational resources at nodes participating in the desired communication and ~~re-performing to re-perform~~ step ~~(iii)~~ (ii) if the desired communication does not meet preset quality of service levels due to computational loading at a node.

Claims 8-11 (Cancelled).

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12. (Currently Amended) The telecommunication system of ~~claims 1 through claim 7~~ wherein at least one of the nodes is a gateway between a packet network and the public switched telephone system.

Kindly add new Claims 13-27, as follows:

A12  
13. (New) The telecommunication system of claim 1, wherein available operating system functions include at least one of the following:

- (a) encryption services;
- (b) traffic shaping services;
- (c) data compression services; and
- (d) voice data combiner services for teleconferencing.

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14. (New) The telecommunication system of claim 1, wherein overall loads on the telecommunication nodes and telecommunication links are dynamically balanced by the operating system.

15. (New) A method of transporting a telephonic communication to a destination through a telecommunications system that includes at least two telecommunications networks, comprising:

- (i) identifying a set of operating system functions required to transport the communication to the destination;
- (ii) distributing the identified operating system functions to respective telecommunication nodes of the telecommunications system; and
- (iii) executing each identified operating system function on its respective telecommunication node such that a predetermined total execution time limit for executing all identified operating system functions is not exceeded, in order to transport desired communication to the destination,

wherein the identified operating system functions are configured to carry out the following steps:

- (iv) digitizing the telephonic communication;
- (v) encapsulating the digitized telephonic communication in Internet Protocol data packets each of which includes a time stamp;
- (vi) encapsulating the Internet Protocol data packets in a protocol compatible with a first telecommunications network in the telecommunications system;
- (vii) transporting the encapsulated Internet Protocol data packets over the first telecommunications network;
- (viii) receiving and stripping the encapsulation added in step (vi) from the encapsulated Internet Protocol data packets; and
- (ix) if the Internet Protocol data packets have reached the destination, then decoding the digitized telephonic communication by stripping the encapsulation added in step (v) from the Internet Protocol data packets, using the time stamps for coordination and synchronization; but
- (x) if the Internet Protocol data packets have not reached the destination, then repeating steps (vi) through (x) for at least one more telecommunications network until the Internet Protocol data packets have reached the destination.

16. (New) The method of claim 15, wherein one of the telecommunications networks is the public switched telephone network.

17. (New) The method of claim 15, wherein the time stamp comprises a time obtained from the Global Positioning System.

18. (New) The method of claim 15, wherein one of the telecommunications networks is a radio access network.

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19. (New) The method of claim 18, wherein communications are transmitted through the radio access network using links connecting the nodes, and wherein tables of load schedules for the nodes and links are updated in real time.

20. (New) The method of claim 19, wherein a poor quality level or fault is responded to by referencing the load schedule tables, and proposing and confirming a shedding of load from at least one link or node so as to re-route affected further communications.

21. (New) The method of claim 19, wherein the node closest to the destination responds to a poor quality level or fault by referencing its load schedule table, and proposing and confirming a shedding of load from at least one link or node so as to re-route affected further communications.

22. (New) An operating system for operating a telecommunications network over which a communication is transmitted to a destination through links connecting at least two nodes, the operating system comprising:

- (i) a first encapsulation function for encapsulating the communication into Internet Protocol data packets each of which includes a time stamp;
- (ii) a second encapsulation function for encapsulating the Internet Protocol data packets into protocol data packets transmittable through the telecommunications network;
- (iii) a transmission function for causing the protocol data packets formed by the second encapsulation function to be transmitted over the telecommunications network;
- (iv) a receiving function for receiving the transmitted protocol data packets and stripping off the encapsulation added by the second encapsulation function to recover the Internet Protocol data packets;
- (v) a stripping function for stripping off the encapsulation added by the first encapsulation function from the Internet Protocol data packets and, using the time stamps, coordinating and synchronizing contents of the Internet Protocol data packets to recover the communication; and
- (vi) a third encapsulation function for encapsulating the recovered Internet Protocol data packets into protocol data packets transmittable through another telecommunications network,

wherein the functions necessary to transport the communication to the destination are identified by the operating system, distributed by the operating system to the at least two nodes, and executed within a predetermined total execution time limit.

23. (New) The operating system of claim 22, wherein the telecommunications network is a wireless telephony local loop and the communication is digitized audio.

24. (New) The method of claim 22, wherein each time stamp comprises a time obtained from the Global Positioning System.

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25. (New) The method of claim 22, wherein the operating system updates tables of load schedules for its nodes and links in real time.

26. (New) The method of claim 25, wherein the operating system is configured to respond to a poor quality level or fault by referencing its load schedule tables, and to propose and confirm a shedding of load from at least one link or node so as to re-route affected further communications.

27. (New) The method of claim 25, wherein the node closest to the destination responds to a poor quality level or fault by referencing its load schedule table, and proposes and confirms the shedding of load from at least one link or node so as to re-route affected further communications.